



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 10

1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

OFFICE OF
ENVIRONMENTAL REVIEW
AND ASSESSMENT

MEMORANDUM

SUBJECT: Groundwater Comments to the Site Inspection of Aqueous Film Forming Foam (AFFF) Release Areas Environmental Programs Worldwide Installation-Specific Work Plan Fairchild Air Force Base Spokane, Washington

FROM: Ted Repasky, Hydrogeologist
Office of Environmental Review and Assessment

TO: Kim Prestbo, Remedial Project Manager
Office of Environmental Cleanup

DATE: January 12, 2017

The following are some comments to the Installation-Specific Work Plan describing Site Inspection (SI) activities to be conducted at aqueous film forming foam (AFFF) areas located at Fairchild Air Force Base (AFB) to determine if a release of perfluorinated compounds (PFCs) may have occurred.

In section 1.1 PERFLUORINATED COMPOUNDS OVERVIEW, the discussion is on the Regional Screening Levels for PFOS and PFOA for soil or sediment. A link is given in the document for the RSL calculator. However, this link does not work. It appears that there is a missing "-" between the "epa" and the "prgs" in the html address. The full link is: https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search. I am not a Risk Assessor, but these soil values may need to be evaluated by someone qualified. Additionally, it is my understanding that EPA does not even have an approved method to evaluate the PFOS and PFOA values in the soils or sediments. The only approved method evaluates levels in drinking water (used for groundwater) samples.

I would recommend rewriting Section 1-4 SITE INSPECTION OBJECTIVES AND SCOPE where it states "*follow-up off-base sampling will only be conducted in the event PFCs are detected above the USEPA HA values at the eastern base boundary*". I believe Kurt Lee had some suggestions on how this could be reworded including having stakeholders reconvene to identify if/where additional deeper wells or additional samples are needed if levels at the eastern boundary are below HA values since there have been known releases at this site.

On the QAPP WORKSHEET #9: PROJECT PLANNING SESSION SUMMARY for the Calibration Area, there is a discussion that two soil borings and one grab groundwater sample that will be collected from the area immediately south of the roadway. This groundwater sample will be collected out of one of the same soil boring wells. However, Figure 3 (partially cut and pasted below in Figure 1) shows an additional well (MW-210) in the vicinity, if it still exists, that would also be a good candidate for sampling groundwater.



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Figure 1: Part of Figure 3 that shows location of well MW-210.

For Fire Station 1 (Building 3) there does not appear to be an existing well ideally located downgradient of the known release. As seen on the figure below (from Figure 5 in the document), well MW-399 is located slightly north of the groundwater flow direction which is more easterly from the release point. Thus this groundwater well may not pick up a detect. However, I do not see a good alternative. But a negative detect in well MW-399 does not mean that PFCs are not present in the groundwater from this release.

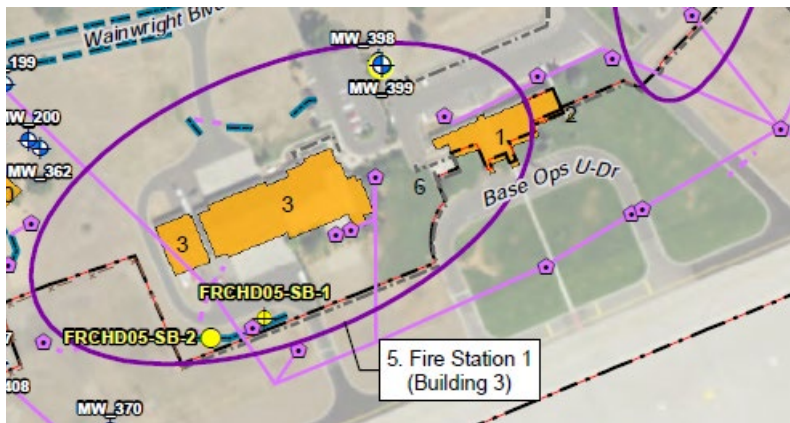


Figure 2: Location of well MW-399 by the known PFC release next to Fire Station 1.

Related to this release, the plan is to also collect a single sediment sample (FRCHD05-SE-1 on Figure 3 in the document) from the retention pond on the east side of the base since part of the contaminated water from the calibration testing may have entered a storm drain that discharges to this pond. The document states that the water in this pond either infiltrates to the groundwater, or evaporates. As such, it would be important to collect a groundwater sample



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close to this pond. Example wells that may be good candidates include MW-13 and MW-144 (Figure 3 below which is part of Figure 3 in the document). Related to this sampling point, the table in the section QAPP WORKSHEET #18-5: SAMPLING LOCATIONS AND METHODS AFFF RELEASE AREA 5: FIRE STATION 1 (BUILDING 3) identifies this sampling point as FRCHD05-SD-1.

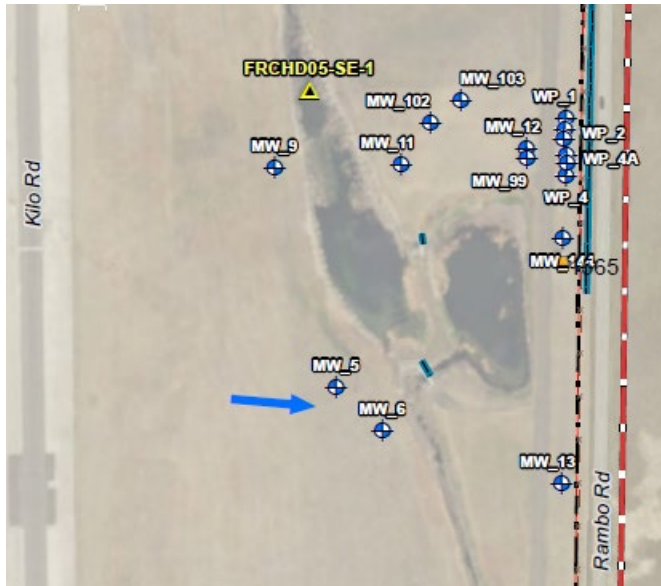


Figure 3: Well locations where groundwater samples could be collected near retention pond.

For the Aircraft Crash Location SS008 (PS-4/9), three borings will sample the soils along the axis of the crash site, and groundwater samples will be collected from three wells downgradient of the site. These wells include MW-438, MW-265, and MMW-1023-1 (Figure 4 below from Figure 5 in the document). If the TCE plumes that have previously been mapped for this site are an indication of groundwater flow, then it should be noted that well MMW-1023-1 is not in either the shallow alluvium TCE plume, nor the weather basalt TCE plumes (Figures 5A and 5B below). Thus an additional sample from well MW-185 could help to determine the presence of the PFCs if they are flowing within the weathered basalt.



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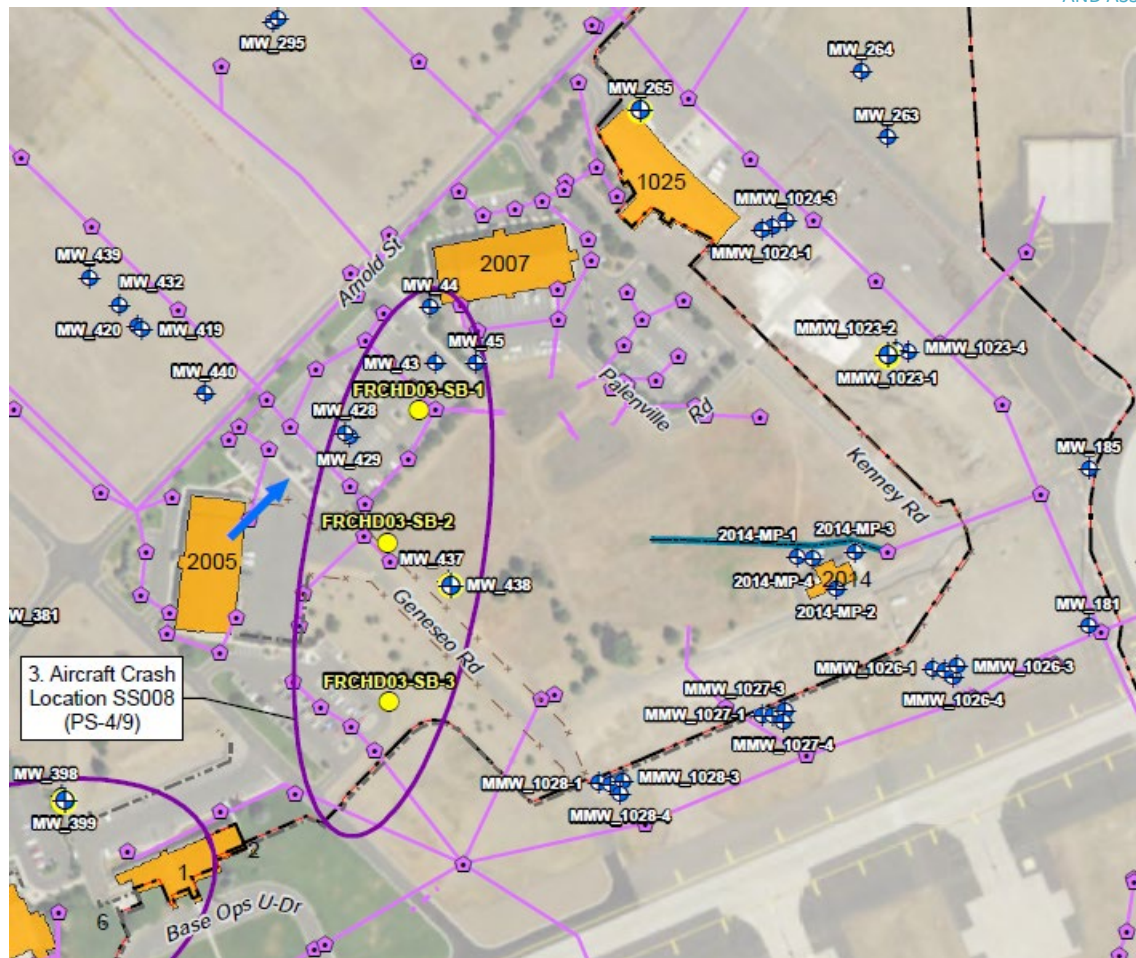


Figure 4: Wells and soil to be sampled by Crash Site SS008.



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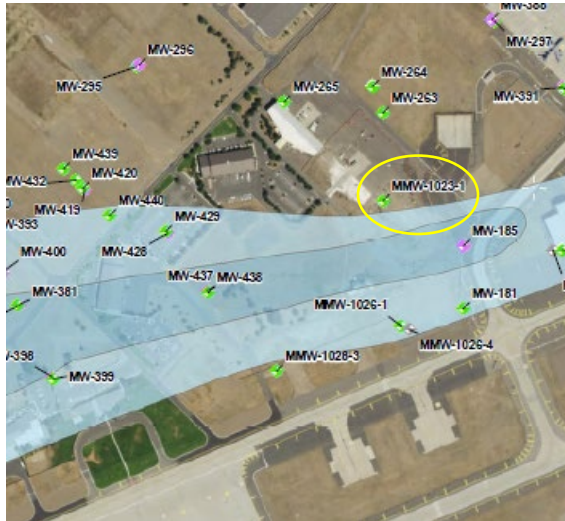


Figure 5A: Weathered basalt TCE plume.

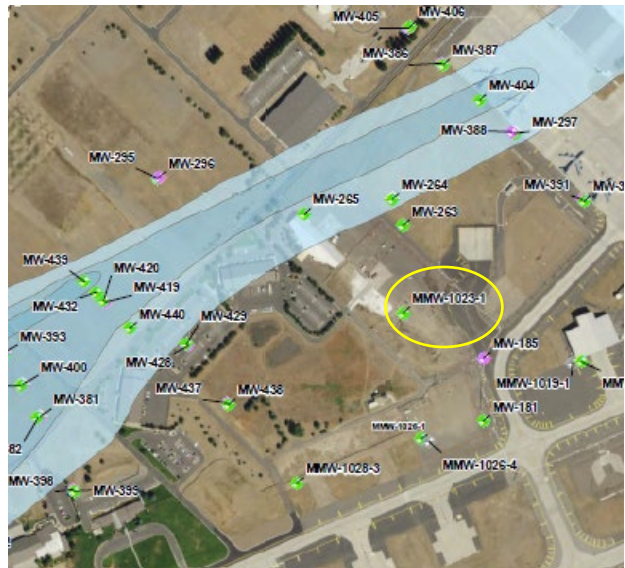


Figure 5B: Alluvial TCE plume.

B-52 Crash Location 1994 will have three soil borings, and three groundwater sample from each of these borings. As can be seen on Figures 6A and 6B below, wells MW-451 and MW-452 are directly downgradient of this crash site and would be good candidates for collecting a groundwater sample.

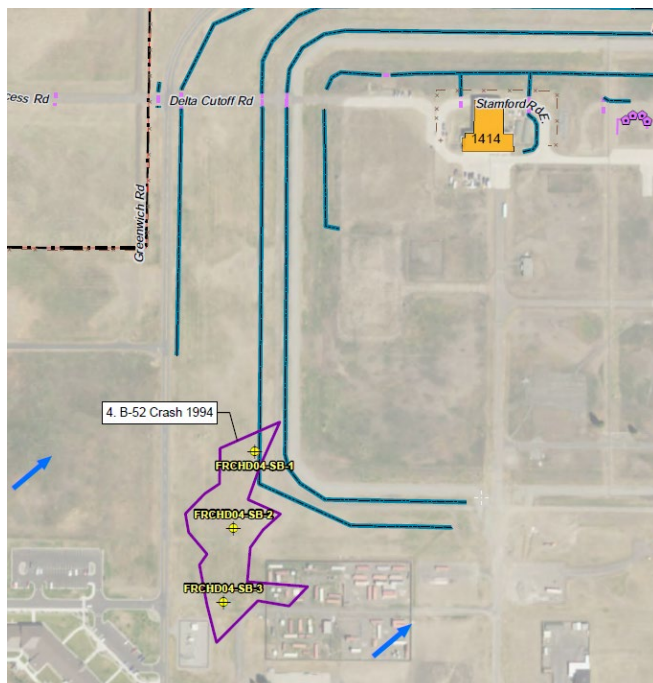


Figure 6A: B52 crash site and groundwater flow direction.



Figure 6B: Wells near the B52 crash site.

Figure 7: Location of soil and well sampling at FT004 site.



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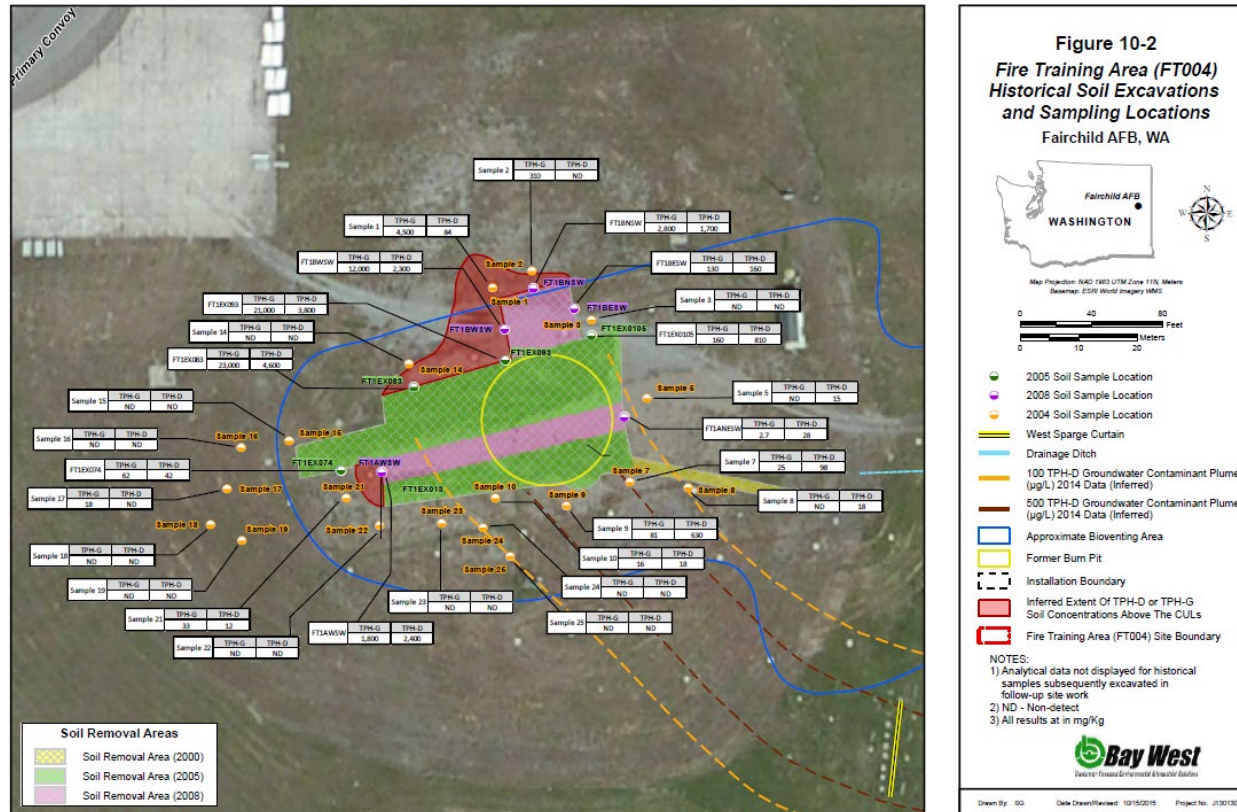


Figure 8: Location of previous soil excavation at site FT004.



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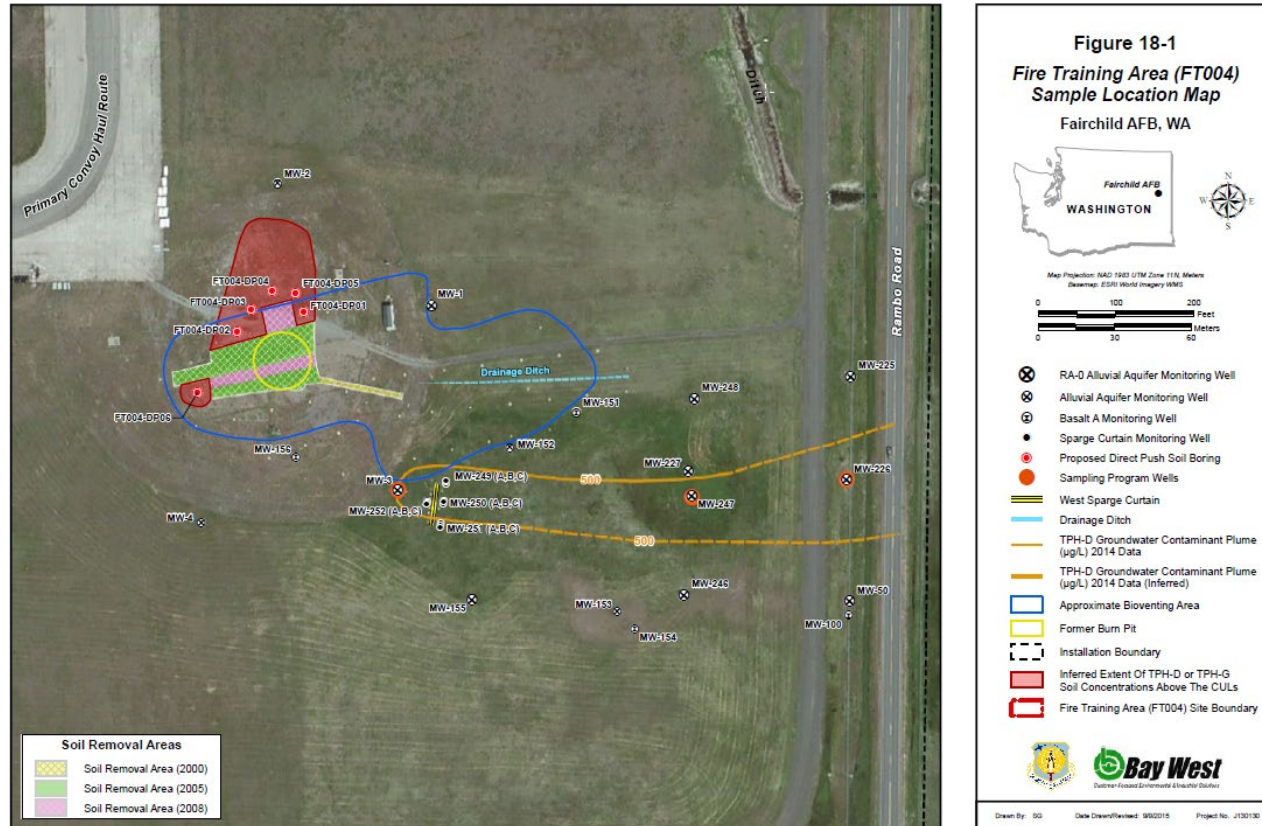


Figure 9: Location of previous soil excavation at FT004.